

## LITHOLOGIC DESCRIPTION

GETTY OIL CO. #1-D  
NW $\frac{1}{4}$ , SE $\frac{1}{4}$ , SEC 23, T5S, R98W, GARFIELD COUNTY, COLORADO

## CORE DESCRIPTION

- 910.5 - 913.85 Oil shale - light brownish gray with some medium brownish gray; HCl - no to minor; earthy luster; laminated; common breakage along near vertical fractures (0°-20°) throughout; pyritic zone at 914.0; common pyrite stringers throughout; altered tuff and oil shale lower portion.
- 913.85- 916.8 Oil shale - medium to dark brownish gray; HCl - no; earthy with some satiny luster; laminated with common loop structures, streaked and distorted bedding; rare crystalline blebs throughout; solution of core at 914.5. (Grease from core barrel will appear as dark blebs on photos.)
- 916.8 - 923.75 Oil shale - light to medium brownish gray with some dark brownish gray laminae; HCl - minor to yes; earthy luster; laminated with rare distorted bedding and loop structures; rare crystalline patches with associated pyrite; common pyritic stringers throughout; tuff layers at 919.8, 921.6, 921.7, 922.1 and 923.1.
- 923.75- 924.9 Oil shale - medium to dark brownish gray; HCl - yes; earthy with some satiny luster; laminated with rare pyritic stringers.
- 924.9 - 928.6 Oil shale - light to medium brownish gray with some buff, grading to medium to dark brownish gray lower portion; HCl - minor (upper) to yes (lower); earthy

- luster; laminated with rare distorted bedding lower portion; tuff layers 926.0 and 927.7; vertical fractures(?) lower end; recored 926.0 - 928.6.
- 928.6 - 931.0 Oil shale - buff and light to medium brownish gray; HCl - yes; earthy luster; laminated.
- 931.0 - 932.4 Oil shale - light, medium and dark brownish gray; HCl - minor; earthy luster; laminated with common distorted bedding lower portion; analcitized tuff at 932.1; gray tuff 932.2 - 932.4.
- 932.4 - 934.0 Oil shale with some siltstone - light to medium brownish gray; HCl - no; earthy luster; laminated with rare distorted bedding; tuff stringers throughout. 933.25 - 933.8 Compressive Strength Sample.
- 934.0 - 935.9 Oil shale - medium to dark brownish gray with some light brownish gray lower portion; HCl - no to minor; earthy luster; laminated with rare loop structures and distorted bedding; tuff layer at 934.6, common tuff and pyritic stringers throughout.
- 935.9 - 941.7 Oil shale - light to medium brownish gray with rare dark brownish gray, common dark brownish gray 939.0 - 939.6; HCl - minor to yes; earthy with rare satiny luster; laminated with rare loop structures and streaked bedding; tuff layers 935.9, 937.9 and 938.8 - 939.0 (gray); some pyrite and tuff stringers throughout.
- 941.7 - 946.7 Oil shale - light, medium and common dark brownish gray; HCl - no to minor; earthy to satiny luster; laminated with common loop structures, streaked and distorted bedding; slump features at 942.7; rare tuff lenses and stringers 942.7 - 944.0; irregular analcitized tuff 942.7 - 942.9; near vertical fracture at bottom; core jumbled at 946.0.
- 946.7 - 950.6 Oil shale - light to medium brownish gray; HCl - no; earthy luster; laminated with distorted bedding associated with tuff stringers; common tuff stringers throughout; lens of analcite at 949.3; high angle fracture 948.0; solution of rich, waxy

- luster oil shale pieces at bottom.  
Interval recored. 950.6 - 955.0 missing.
- 955.0 - 956.25 Oil shale - medium to dark brownish gray, rare light brownish gray; HCl - minor; earthy with rare satiny luster; laminated with rare streaked bedding; some tuff stringers throughout; partially analcitized tuff at 956.0.
- 956.25- 957.6 Oil shale - light to medium brownish gray with some dark brownish gray zones; HCl - minor; earthy luster; laminated with rare streaked bedding; rare tuff stringers throughout.
- 957.6 - 960.1 Oil shale - medium to dark brownish gray with rare light brownish gray; HCl - no; earthy with rare satiny luster; laminated with common loop structures, streaked and distorted bedding; wavy bedding associated with tuff at 957.8; irregular tuffs 959.1 and 959.3.
- 960.1 - 962.4 Oil shale and mudstone - light to medium brownish gray with rare dark brownish gray; HCl - no; earthy luster; laminated with some distorted bedding; some tuff stringers throughout.
- 962.4 - 965.1 Oil shale - medium to dark brownish gray; HCl - minor; earthy with some satiny luster; laminated with common loop structures, streaked and distorted bedding, slump structure 964.0 - 964.2; tuff at 962.9.
- 965.1 - 969.35 Oil shale - light, medium and dark brownish gray; HCl - no; earthy with rare satiny luster; laminated with common loop structures and distorted bedding; offset of tuff stringer at 965.5 along microfault; soft, discontinuous tuff at 966.2; rare tuff stringers throughout.
- 969.35- 972.0 Oil shale and mudstone - buff to light brownish gray with some medium brownish gray; HCl - no to minor; chalky to earthy luster; laminated; common tuff and pyrite stringer throughout. 971.15 - 972.0 missing.
- 972.0 - 975.5 Marlstone with some oil shale - buff to light brownish gray with rare medium

- brownish gray; HCl - yes; chalky to earthy luster; laminated to massive with common streaked bedding to 974.0; some structures to 973.0; near vertical fracture 974.0 - 975.0.
- 975.5 - 977.15 Oil shale - medium to dark brownish gray; HCl - minor; earthy luster; laminated with common loop structures, streaked, and distorted bedding; irregular tuff at 976.1.
- 977.15- 981.25 Oil shale - light, medium, and dark brownish gray; HCl - minor; earthy luster; laminated with common loop structures and distorted bedding; bedding highly distorted around analcitized tuff zone 979.6 - 979.8; tuff at 980.6; rare tuff stringers throughout.
- 981.25- 991.0 Oil shale and mudstone - buff and light to medium brownish gray with rare dark brownish gray streaks and laminae; HCl - minor; earthy luster; laminated with common loop structures, streaked and distorted bedding; 0.1 inch tuff at 981.35; rare tuff stringers throughout, more common lower end. 986.65 - 991.0 missing.
- 991.0 - 992.9 Oil shale - medium to dark brownish gray with some light brownish gray; HCl - no; earthy luster; laminated with common loop structures, streaked, and distorted bedding; broken and recored at 992.0; solution cavity at 992.9.
- 992.9 - 999.4 Oil shale - light, medium and dark brownish gray with rare buff; HCl - no to minor; earthy luster; laminated with some loop structures and distorted bedding; broken and recored 996.0 - 997.0 with evidence of solution cavities at 996.3; partial recovery of analcite(?) and oil shale zone at 994.7; some tuff stringers and streaks 998.0 to bottom.
- 999.4 -1001.4 Oil shale - light to medium brownish gray; HCl - yes; earthy luster; laminated with common streaks and stringers of gray tuff with rare pyrite.
- 1001.4 - 1023.1 Marlstone, siltstone and sandstone - buff to light brownish gray with rare dark brownish gray; HCl - yes; chalky to earthy

- luster; laminated to banded with some kerogen-rich laminae or zones, common streaked, and distorted bedding; bedding offset 0.1 inch 1012.0 - 1013.0; some tuff stringers 1007.0 - 1009.0; rare solution of tuffs upper portion to 1007.0; common high-angle (10°-40°) fractures throughout interval, no indication of fault slippage; some small solution cavities 1021.0 to bottom.
- 1023.1 - 1024.6 Oil shale - medium to dark brownish gray; HCl - no; earthy with rare satiny luster; laminated with common loop structures, streaked and distorted bedding; rare tuff stringers 1024.0 to bottom.
- 1024.6 - 1029.3 Oil shale - light to medium brownish gray; earthy luster; HCl - no; laminated with some streaked and distorted bedding; some tuff stringers throughout with analcitized tuff (0.5 inch) at 1025.8.
- 1029.3 - 1033.1 Oil shale - light, medium and dark brownish gray; HCl - minor; earthy with rare satiny luster; laminated with some loop structures, common streaked and distorted bedding; rare tuff streaks and stringers throughout; broken 1032.0 - 1033.0.
- 1033.1 - 1035.3 Oil shale - light to medium brownish gray with some dark brownish gray zones; HCl - no; earthy luster; laminated with rare loop structures and some distorted bedding; rare tuff stringers throughout; wavy tuff at 1034.6.
- 1035.3 - 1038.1 Oil shale - light, medium and dark brownish gray; HCl - minor; earthy luster; laminated with common streaked and distorted bedding; rare tuff stringers to 1036.0; irregular tuff at 1037.1. 1037.5 - 1038.0 Compressive Strength Sample.
- 1038.1 - 1044.05 Oil shale - light, medium and dark brownish gray; HCl - no; earthy luster; laminated with common loop structures, streaked and distorted bedding; solution cavities 1041.3 - 1041.5 and 1042.8 - 1043.1 (nahcolite boxworks?); rare streaks of gilsonite 1041.0 to bottom.

- 1044.05- 1049.2 Oil shale - light, medium and dark brownish gray; HCl - no; earthy with rare satiny luster; laminated with some distorted bedding; some tuff streaks and stringers throughout with associated pyrite. (BOTTOM R-67)
- 1049.2 - 1054.6 Marlstone - buff to light brownish gray with rare medium brownish gray; HCl - yes; chalky to earthy luster; faintly laminated to massive; common small solution cavities throughout; 45° fractures common throughout; tuff blebs and stringers common toward bottom of interval.
- 1054.6 - 1056.1 Oil shale - light to medium brownish gray with rare dark brownish gray; HCl - no; earthy luster; laminated with some distorted bedding; some tuff stringers throughout; partially analcitized tuff at 1055.0.
- 1056.1 - 1059.5 Sandstone and marlstone - buff with rare light brownish gray; HCl - yes; chalky luster; laminated to massive with some distorted bedding; common fracturing and small solution vugs throughout. 1059.5 - 1060.75 missing.
- 1060.75- 1074.0 Oil shale with some marlstone - medium to dark brownish gray with some light brownish gray; HCl - no to minor; earthy luster; rare to some lamination with common streaked bedding; rare shaly parting at top of interval; extensive solution of core at 1068.6; some pyritic streaks and stringers throughout; tuff at 1066.6; rare tuff stringers throughout. 1071.5 - 1072.3 Footage Adjustment. 1066.1 - 1066.6 Compressive Strength Sample.
- 1074.0 - 1079.8 Siltstone - buff to light brownish gray; HCl - yes; chalky to earthy luster; laminated to banded with rare kerogen-rich laminae; rare solution vugs, some solution of tuff 1077.2 to 1077.6; rare tuff stringers throughout; locally abundant pyrite associated with solution vugs; high angle fractures throughout.
- 1079.8 - 1084.9 Mudstone and oil shale - medium brownish gray to medium greenish brown with some light brownish gray; HCl - no; earthy luster; laminated; tuffs 1083.3 - 1083.5 and 1084.35 - 1084.7.

1084.9 - 1090.85

Mudstone - buff to light brownish gray;  
HCl - no; chalky luster; laminated to  
banded; rare pyritic streaks and stringers;  
kerogen-rich zone 1088.2 - 1089.3; rare  
fractures in center portion.

1090.85- 1096.3

Sandstone - gray to light gray; HCl -  
yes; chalky luster; laminated to banded  
with common, distorted, brownish silt  
layers throughout; rare vertical fracturing.  
Correlation with #6-D and Cities Service.

TOTAL DEPTH